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TITLE. RELEVANT LITERATURE IN SUPPORT OF KNOWLEDGE-BASED SIMULATION MODELS

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RELEVANT LITERATURE IN SUPPORT OF KNOWLEDGE-BASED SIMULATION MODELS

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Introduction

This article describes and references the relevant literature related to knowledge-based simulation. There are essentially ten areas of literature that would likely contain relevant articles. They are the management science/operations research literature, the simulation (and modeling) literature, the production/operations management literature, the knowledge engineering and artificial intelligence literature, the systems science literature, the industrial engineering literature, the mechanical engineering literature, and the information science literature.

Objectives Statement

The objective of this literature search is to distill from periodicals and journals a list of articles that would have some relevance to knowledge-based simulation. That list appears later in this paper. It is hoped that this bibliographic search will be useful to researchers.

Assumptions Implicit Within the Literature Search

Because knowledge-based simulation is a recent development within the fields of simulation and knowledge based systems, the search did not go back beyond the year 1984.

Management Science/Operations Research Literature

The following periodicals were scrutinized for relevant articles:

- Computers and Operations Research
- Iomega
- Journal of Optimization Theory and Applications
- Management Science
- Operational Research
- Operations Research
- SIAM Journal on Computing

For cross-reference purposes, all management science/operations research literature has been given the designation [MS] in the list of articles which appears later in the paper.

Simulation Literature

There is a tremendous wealth of simulation literature both in terms of hard-bound books and proceedings and of journals. In total the following periodicals were examined.

- Pittsburgh Modeling and Simulation Conference
- Sigart Newsletter
- Simulation

For cross-reference purposes, all simulation literature has been given the designation [S].

Production/Operations Management Literature

The following journals were perused for possible articles:

- International Journal of Production Research
- Inventory Management
- Journal of Operations Management
- Journal of Production and Inventory Control
- Journal of Purchasing and Materials Management

For cross-reference purposes, all production/operations management literature has been given the designation [P].

Knowledge Engineering and AI Literature

In total, the following periodicals were examined:

- AI Magazine
- Artificial Intelligence
- IEEE Transactions on Pattern Analysis and Machine Intelligence

For cross-reference purposes, all knowledge engineering and AI literature has been given the designation [A].

Systems Science Literature

In total, the following periodicals were examined.

- IBM Systems Journal
- Cybernetics and Systems: An International Journal
- IEEE Transactions on Systems, Man, and Cybernetics
- Information and Control (Information and Computation)
- International Journal on System Science

For cross-reference purposes, all systems science literature has been given the designation [T].

Software Engineering Literature

This area included the following periodicals:

- IEEE Software
- IEEE Transactions on Software Engineering
- IEEE Computer

For cross-reference purposes, all software engineering literature has been given the designation [SE]

Management Literature

The following periodicals were examined:

Long Range Planning
Research and Development
Research Management
Research Policy

For cross-reference purposes, all management literature has been given the designation [M].

Industrial Engineering Literature

The following journals and periodicals were scrutinized:

AIIE Transactions
IEEE Transactions on Engineering Management
Industrial Engineering
Plant/Operations Progress

For cross-reference purposes, all industrial engineering literature has been given the designation [IE].

Mechanical Engineering Literature

The following periodicals were perused:

ASME Transactions
ASME Conference on Computers in Engineering
Applied Mathematical Modelling
IBM Journal of Man-machine Studies
Robotics & Computer-Integrated Manufacturing

For cross-reference purposes, all mechanical engineering literature has been given the designation [IE].

Information Science Literature

The following periodicals were examined in this content area:

Information Sciences
Information Systems
The Information Society

Assessment of the Literature Search

In addition to the Engineering Index and the Applied Science and Technology Index, this literature search has examined 41 separate periodicals in ten areas, as listed above. Approximately 70 articles were distilled from this literature. These articles range from the practical to the pragmatic, from the theoretical to the thoughtful, and from immense relevance to remoteness. Only the recent literature (going back only 3-1/2 years through 1984 was considered. Any search that went further back than this was totally unproductive--even in the most relevant periodicals.

Those periodicals that contained at least one relevant article in them are listed below.

AI Magazine
Applied Mathematical Modelling
Artificial Intelligence
Expert Systems
IBM Journal of Research and Development
IEEE Computer
IEEE Software
IEEE Transactions on Software Engineering
IEEE Transactions on Systems, Man, and Cybernetics
Industrial Engineering
International J. of Man/Machine Systems
International J. of Production Research
Management Science
Operations Research
Pittsburgh Modeling and Simulation Conference
Proc. ASME Conference on Computers
Robotics and Computer Integrated Manufacturing
Simulation

Conclusion

The literature suggests that knowledge-based simulation is coming into vogue and that substantial resources will be committed to the development of such models in the future. The field is comparatively new and little or no literature exists in the area prior to January 1985. To date, the most relevant periodicals are:

Simulation
IEEE Transactions on Systems, Man, and Cybernetics
AI Magazine

Of the 41 periodicals examined, only 18 were found to contain articles of possible relevance. The list of relevant articles follows. The list may not be exhaustive.

Total List of Articles in Alphabetic Order by First Author

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